

On Bavarian gall-making sawflies on willows

(Hymenoptera, Tenthredinidae, Nematinae)

Andrew D. LISTON

Abstract

Species diversity in the Euurina, gall-making sawflies on *Salix* spp., is high in Germany. 47 described taxa are now known. In Bavaria the largest number of species occurs in the lower montane zone and down the valleys of the rivers which rise in the Alps. At high subalpine and alpine levels few species are present. At similar altitudes in the more central Alpine mountain ranges more species occur, and several of these are much more frequent there than in the Northern Limestone Alps. *Euura myrsinifoliae* KOPELKE, *E. weiffenbachii* ERMOLENKO, *Pontania collactanea* (FÖRSTER) and *P. hastatae* VIKBERG are recorded for the first time in Bavaria, from samples of galls collected between ca. 1883-1943. *E. myrsinifoliae* and *P. hastatae* are new to the German fauna.

Introduction

Sawflies of the genera *Pontania*, *Phyllocolpa* and *Euura* comprise a natural taxonomic entity for which the sub-tribal name Euurina is available (ZINOVJEV & VIKBERG 1998). The group is characterised biologically by its gall-making habit and exclusive attachment to the Salicaceae (in Europe only on *Salix*). BLANK et al (2001) recognise 35 species in Germany. With data in KOPELKE (2000, 2001), LISTON (2002) and LISTON & SPÄTH (in preparation) which became available too late for inclusion by BLANK et al (2001) and the results of research still in progress (see also discussion, below) the number of described Euurina species in Germany rises to 47, of a total of approximately 725 German Symphyta. The rather high species diversity of the Euurina together with the frequent local abundance of their galls make them one of the ecologically more significant groups of Symphyta. KOPELKE (1999) reviews the large community of parasitoids, inquilines and predators that more or less depend on the resource represented by their larvae and galls.

Although HUBER (1969) published valuable data on Euurina galls collected in Swabia, the gall-making sawflies of Bavaria have been rather neglected by entomologists in recent times. Taxonomic revisions of large parts of the genus *Pontania* (KOPELKE 1999; ZINOVJEV & VIKBERG 1999) and the whole of *Euura* (KOPELKE 1999, 2000, 2001) make a fresh appraisal of the fauna desirable. The present note contains previously unpublished data on four Euurina species from Bavaria. Records are based on herbarium material collected in the period ca. 1883 to 1943. It is hoped that the older records published here will stimulate a search for extant populations of these sawflies.

Material and methods

Through the kind assistance of Dr. D. TRIEBEL it was possible to examine the extensive collection of plant galls at the Botanical Institute, Munich (M). The material used by J. A. HUBER for his review of Swabian plant galls (HUBER 1969) forms a major part of this collection. Specimens are preserved dry in large format herbarium folders. Condition of the material is generally excellent, although the traditional method of preparation has led to the softer galls either being pressed flat, or suffering some shrinkage and distortion. As VIITASAARI (2002) suggests, freeze-drying is probably a superior method of conservation for such specimens. Most of the galls are preserved on larger sections of shoots of the

hostplant. Catkins or their remains are present on many specimens, a valuable aid to identification of the willow. The importance of accurately determining the *Salix* species involved can not be too highly emphasised (VIITASAAI 2002: 102). For this purpose the revision of Austrian willows by HÖRANDL (1992), which also covers the neighbouring Bavarian Alps was found invaluable. Galls of most of the north and central European species of *Euura* and *Pontania* are illustrated by KOPELKE (1999).

Results

Euura myrsinifoliae KOPELKE, 2001

Swabia; Pfronten, Gschoen, 900 m, 13 September 1919, leg. K. MAYR; Pfronten, Kronburg, 950 m, 27 August 1921, leg. MAYR. Galled flower buds of *Salix myrsinifolia*. **New for Germany.** The specimens collected in 1921 were referred to *Euura atra* JUR. by ROSS (1922). Galls of what appears to be *E. myrsinifoliae* were recorded by ROSS (1916) from "München: bei Maisach (BÜHLMANN)" under "*Cryptocampus*-spp."

The galls of this species, like those of many other *Euura*, are quite inconspicuous and probably often overlooked. SCHÖNFELDER & BREZINSKY (1990) indicate that the hostplant, *Salix myrsinifolia* (= *nigricans*) has a rather wide upland distribution in Bavaria. *E. myrsinifoliae* has been found previously in Scandinavia and Alpine regions of Switzerland and Austria (KOPELKE 2001).

Euura weiffenbachii ERMOLENKO, 1988

Upper Bavaria; Allach near Munich, 10 May 1903, leg. AIGNER; Upper Palatinate; Lkr. Donauwörth, Huisheim, August 1943, leg. K. RUTTMANN. Galls in the shoots of *Salix repens*. **New for Bavaria.** The galls from Huisheim were attributed to *Pontania collactanea* by HUBER (1969) (see below). Following JÖRGENSEN (1906) the galls of *E. weiffenbachii* have been mistaken for those of *P. collactanea* by various authors.

BLANK et al. (2001) record this species only from Schleswig-Holstein and Saxony. In both these States, *E. weiffenbachii* has occurred recently (post 1980 records). WEIFFENBACH (1992) described its ecology and illustrated the gall and larva. Much of the commentary on *Pontania collactanea* (see below) applies equally to *E. weiffenbachii*, because they share the same hostplant, *S. repens*. Available records seem to indicate that *E. weiffenbachii* is more local or scarcer than *P. collactanea*, but perhaps the *Euura* galls in the shoots are simply more often overlooked than the bright red "cranberries" made by the *Pontania* on the leaves.

Pontania collactanea (FÖRSTER, 1854)

Upper Palatinate; Klardorfer Forst near Schwandorf, ca. 1883, leg. LORITZ, comm. VOLLMANN; Klardorf, 19. August 1912, v. SCHELLING. Round galls on the underside of leaves of *Salix repens*. **New for Bavaria.** A previous published Bavarian record of *collactanea* (HUBER 1969) refers to *Euura weiffenbachii* (see above).

In Central Europe, this species is more often recorded from coastal regions than inland. BLANK et al (2001) list *collactanea* from Schleswig-Holstein, Lower Saxony, North Rhine Westphalia, Saxony and Baden-Württemberg (all with post 1980 occurrence). The sole hostplant, *S. repens*, is quite local in Bavaria in moorland habitats, and has nearly disappeared from some regions in recent historical times (eg. Lower Bavaria, ZAHLHEIMER 2001). The distribution map for *repens* in SCHÖNFELDER & BREZINSKY (1990) suggests that it might be possible to find extant Bavarian populations of *P. collactanea* (and *E. weiffenbachii*, see above) particularly in pre-alpine Upper Bavaria and the Oberpfälzer Wald, on the Western edge of which lies the historic locality of Schwandorf (above).

Pontania hastatae VIKBERG, 1970

Upper Bavaria; Berchtesgaden, around the Funtenseehaus, 1638 m, August 1916, leg. v. SCHÖNAU; Berchtesgaden, by the path from the Funtensee to the (Austrian) Border, 11. August 1926,

leg. SCHOENAU. Round galls on the leaf undersides of *Salix hastata*. New to Germany.

The two sections of terminal shoots collected in 1916 bear 7 and 9 galls. Approximately half of the total number of leaves are galled. As in many other *Pontania*, *hastatae* is known to sometimes occur at very high local population levels (KOPELKE 1999), as may have been the case here.

P. hastatae is widely recorded in Northern Europe (Scandinavia, Finland, N. Russia) and was found more recently in the Austrian, Swiss (KOPELKE 1990) and French Alps (LACOURT 1993). The possible presence of *hastatae* in Germany had already been suspected by BLANK et al (1998). SCHÖNFELDER & BREZINSKY (1990) show a very local distribution for the only hostplant, *S. hastata*, in the Bavarian Alps, with a conspicuous cluster of records in the Berchtesgaden area. This willow prefers acidic soils and occurs only very locally as isolated plants in the Northern Limestone Alps (HÖRANDL 1992). It thus seems probable that *P. hastatae* was always an extremely local species in Bavaria. Its present status requires investigation.

Discussion

LISTON (2002) suggested that a number of species of *Pontania* not previously recorded in Germany might be found in the Bavarian Alps. After further investigation, it seems that only about six species occur here above the tree-line. About double this number is known from the high subalpine-alpine zones of the Central Alpine massifs (KOPELKE 1999). In Bavaria two of these alpine species, *hastatae* (see above) and *reticulatae* MALAISE (LISTON 2002), are probably either very local, or rare and at least potentially endangered. The only abundant and widespread species are *P. retusae* BENSON (on *Salix retusa*) and a guild of three species (in the *proxima*-, *viminalis*- and *herbaceae*-species groups) on *Salix waldesteiniana* (HUBER 1969 & personal observations). The taxonomy and nomenclature of these three species are still under investigation. The low species diversity at the highest altitudes in the Bavarian Alps is even more pronounced in *Euura*. Only one species is typically found above the tree-line (pers. obs). It therefore appears that species diversity in both genera is highest in the lower montane/upper colline zones. This corresponds to an altitudinal range of approximately 600-1200 m in Bavaria. A particularly rich fauna of sawfly gall-makers is also found at lower levels along the banks of the rivers which rise in the Alps (eg. Lech, Isar, Inn). Here some predominantly lowland willow species (eg. *Salix viminalis*, *alba*) occur in close proximity to those of mainly upland distribution such as *S. eleagnos*, *daphnoides* or *myrsinifolia*. *E. myrsinifoliae* belongs to a group of at least seven mainly sub-montane *Euura* taxa which are attached to the latter three *Salix* species.

According to known records (above), the two gall-making sawflies on *Salix repens* were present in Bavaria until at least 1912 (*Pontania collectanea*) and 1943 (*Euura weffenbachii*). They are rather rarely recorded in inland areas of Central Europe and probably both are more widespread in the coastal districts of Northern and Western Europe, as is their host. The parasitoid community has not yet been investigated in any detail in these inland populations, and might contain different species to those previously identified in the British Isles, North Germany and Denmark (HANAPI & ASKEW 1991; KOPELKE 1999).

Acknowledgements

I am particularly grateful to Dr. D. TRIEBEL (Botanische Staatssammlung, Munich) for allowing me to examine the specimens in the Gall Collection on which this note is based. For valuable advice, discussion and assistance I would like to thank Dr. K. BENES (Prague), Dr. J. -P. KOPELKE (Frankfurt a. M.), Dr. M. KRAUS (Nürnberg), Dr. G. RAMBOLD (Bayreuth), L. REINTKE (Daibersdorf) and Dr. J. SPÄTH (Dingolfing).

Zusammenfassung

Aufgrund von Herbarbelegen aus den Jahren ca. 1883 bis 1943 wurden vier gallenbildende Blattwespenarten an Weiden (*Salix*-Arten) erstmalig für Bayern nachgewiesen: *Euura myrsinifoliae* KOPELKE 2001, *E. weiffenbachii* ERMOLENKO 1988, *Pontania collectanea* (FÖRSTER 1854) und *P. hastatae* VIKBERG 1970. *E. myrsinifoliae* und *P. hastatae* sind neu für die deutsche Fauna. Der aktuelle Status in Bayern dieser vier Arten bleibt zu prüfen.

Über die Artenvielfalt der Eurina in Deutschland und ihre vertikale Verbreitung in Bayern wird kurz berichtet. Diese gallenbildende Gruppe der Nematinae stellt mit rund 50 der etwa 725 nachgewiesenen Arten einen wichtigen Teil der deutsche Symphytenfauna dar. Schwerpunkt der Verbreitung der Gattungen *Pontania* und *Euura* in Bayern liegt in den unteren Stufen der montanen Zone (etwa 600-1200 m). Nur wenige *Pontania*-Arten, und einer einzigen *Euura*-Art kommen regelmässig oberhalb der Baumgrenze (oberhalb 1600-1800 m) vor. Somit ist bezüglich Eurina das bayerischen Hochgebirge eher als artenarm zu bezeichnen im Vergleich mit ähnlichen Habitaten in den Zentralalpen.

References

- BLANK, S. M., BOEVE, J.-L., HEITLAND, W., JÄNICKE, M., JANSEN, E., KOCH, F., KOPELKE, J.-P., KRAUS, M., LISTON, A. D., RITZAU, C., SCHMIDT, S. & TAEGER, A. 1998: Checkliste der Pflanzenwespen Deutschlands. – In: TAEGER, A. & BLANK, S. M. (eds.) Pflanzenwespen Deutschlands, Keltern 364 pp.
- BLANK, S. M., DETERS, S., DREES, M., JÄNICKE, M., JANSEN, E., KRAUS, M., LISTON, A. D., RITZAU, C., & TAEGER, A. 2001: Symphyta. – In: DATHE, H. H., TAEGER, A. & BLANK, S. M. (Hrsg): Verzeichnis der Hautflügler Deutschlands (Entomofauna Germanica 4). – Entomologische Nachrichten und Berichte, Beiheft 7, 8-28.
- HANAPI, S. B. & ASKEW, R. R. 1991: The biology of the sawfly *Pontania collectanea* (Förster) (Hym., Tenthredinidae). – Ent. mon. Mag. 127, 29-34
- HÖRANDL, E. 1992: Die Gattung *Salix* in Österreich (mit Berücksichtigung angrenzender Gebiete). – Abh. zool.-bot. Ges. Österreich, Wien, 170 pp.
- HUBER, J. A. 1969: Blattminen und Pflanzengallen Schwabens. – Ber. naturforsch. Ges. Augsburg 23, 3-204.
- KOPELKE, J.-P. 1990: Die Arten der *vininalis*-Gruppe, Gattung *Pontania* O. Costa 1859, Mittel- und Nordeuropas Insecta: Hymenoptera: Tenthredinidae). – Senckenbergiana biol. 71, 65-128.
- 1999: Gallenerzeugende Blattwespen Europas. Taxonomische Grundlagen, Biologie und Ökologie (Tenthredinidae: Nematinae: *Euura*, *Phyllocolpa*, *Pontania*). – Courier Forschungsinstitut Senckenberg 212, 183pp.
- 2000: *Euura auritae* n.sp. – ein neuer Gallenerzeuger der *atra*-Gruppe in Europa (Insecta, Hymenoptera, Tenthredinidae, Nematinae). – Senckenbergiana biol. 80, 159-163.
- 2001: Die Artengruppe von *Euura mucronata* und *E. laeta* in Europa. – Senckenbergiana biol. 81, 191-225.
- LACOURT, J. 1993: Notes sur quelques especes de tenthredes rares ou nouvelles pour la France. – Ent. Gall. 4, 127-133.
- LISTON, A. 2002: *Pontania reticulatae* Malaise, 1920 in the Bavarian Alps (Hymenoptera, Tenthredinidae). – NachrBl. bayer. Ent. 51, 83-84.
- LISTON, A. D. & SPÄTH, J. in preparation: Bemerkenswerte Funde von Blattwespen in Niederbayern mit Erstnachweisen für Deutschland und Bayern.
- ROSS, H. 1916: Die Pflanzengallen Bayerns und der angrenzenden Gebiete. – Gustav Fischer, Jena.
- 1922: Die Pflanzengallen Bayerns und der angrenzenden Gebiete. I. Nachtrag (1916-1921). – Ber. bayer. botan. Ges. 17, 98-132.
- SCHÖNFELDER, P. & BREZINSKY, A. 1990: Verbreitungsatlas der Farn- und Blütenpflanzen Bayerns. – Stuttgart, 752pp.
- VIITASAARI, M. 2002: Sawflies (Hymenoptera, Symphyta) I. A review of the suborder, the Western Palaearctic taxa of Xyeloidea and Pamphilioidea. – Helsinki, 516pp.
- WEIFFENBACH, H. 1992: *Euura weiffenbachii* Ermolenko, 1987, eine für Deutschland neue *Euura* (Hymenoptera: Tenthredinidae: Nematinae). – Mitt. intern. Ent. Ver. 17, 5-9.

- ZAHLHEIMER, W. 2001: Die Farn- und Blütenpflanzen Niederbayerns, ihre Gefährdung und Schutzwürdigkeit, mit Erstfassung einer Roten Liste. – Hoppea, Denkschrift Regensburger Bot. Gesellschaft **62**, 5-347.
- ZINOVJEV, A. G. & VIKBERG, V. 1998: On the biology of Nematinae with hiding larvae (Hymenoptera, Symphyta, Tenthredinidae). – Beitr. Ent. **48**, 145-155.
- 1999: The sawflies of the *Pontania crassispina*-group with a key for the genera of the subtribe Euurina (Hymenoptera: Tenthredinidae, Nematinae). – Ent. scand. **30**, 281-298.

Author's address:

Andrew D. LISTON
 Amselweg 84
 D-84160 Frontenhausen
 Germany

Comeback der Rosenkäfer *Cetonia aurata* (L.) in München

(Coleoptera, Scarabaeidae)

Josef REICHHOLF

Abstract

Observations from the year of 1985 to 2002 revealed a marked increase in the abundance of the Cetoniid *Cetonia aurata* in the western parts of the city of Munich, especially in the surroundings of the State Zoological Collections. The increase occurred in the past few years (2000 to 2002) and in these years several reports came in from the neighbourhood concerning the discovery of lots of larvae of this species in garden compost-heaps. Thus a change in female habitat selection for this type of larval environment may have triggered the striking increase. Perhaps it is this kind of larval habitat which has caused also an untimely 'early' appearance of the beetles late in autumn, which accounts for roughly a quarter of all sightings. Normal flight season ranges from the beginning of May to July and whereas daytime activity spreads from 9 a.m. to nearly 9 p.m. in this main flight period it is restricted in autumn to the hours around noon and to days of quite unseasonal warm weather. Climatic change may have nothing to do with the increasing abundance of this beetle.

Einleitung

Die bekanntlich starke Temperaturabhängigkeit von Insekten wirft die Frage auf, ob sich die von den Meteorologen konstatierte Klimaerwärmung auch bei wärmeliebenden Insektenarten zeigt. Zahlreiche Befunde aus den letzten Jahrzehnten weisen in diese Richtung oder werden in Zusammenhang mit der Klimaveränderung gebracht. Hier soll die Entwicklung der "sichtbaren Häufigkeit" einer zweifellos wärmeliebenden und zugleich bekannten und auffälligen Käferart unter den zudem noch besonders wärmebegünstigten Großstadtklima-Verhältnissen betrachtet werden. Denn Rosenkäfer, auch der gewöhnliche und vielerorts in Mitteleuropa mit Abstand häufigste von ihnen, *Cetonia aurata* (L.), erfüllen sicherlich am besten die Voraussetzungen hierfür. Zudem war der Rosenkäfer das "Insekt des Jahres 2000".